



The California Hydrogen Highway Network

Overview of Progress and Next Steps

Public Meeting

December 8, 2004

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Reminders:

Questions and comments can be submitted during this session:

Webcast viewers: email to onair@arb.ca.gov

Attendees: fill out and submit form



$$\left[\frac{p^2}{2\mu} + V(r) \right] \psi(r) = E \psi(r)$$

California Hydrogen Highway Network: Core Values and Objectives

- Promote energy independence
- Enhance energy security & diversity
- Reduce air pollution
- Reduce global warming emissions
- Protect public health
- Promote economic competitiveness
- Create jobs and business opportunities

**Note: for detailed background and mission statements:
<http://hydrogenhighway.ca.gov/>**



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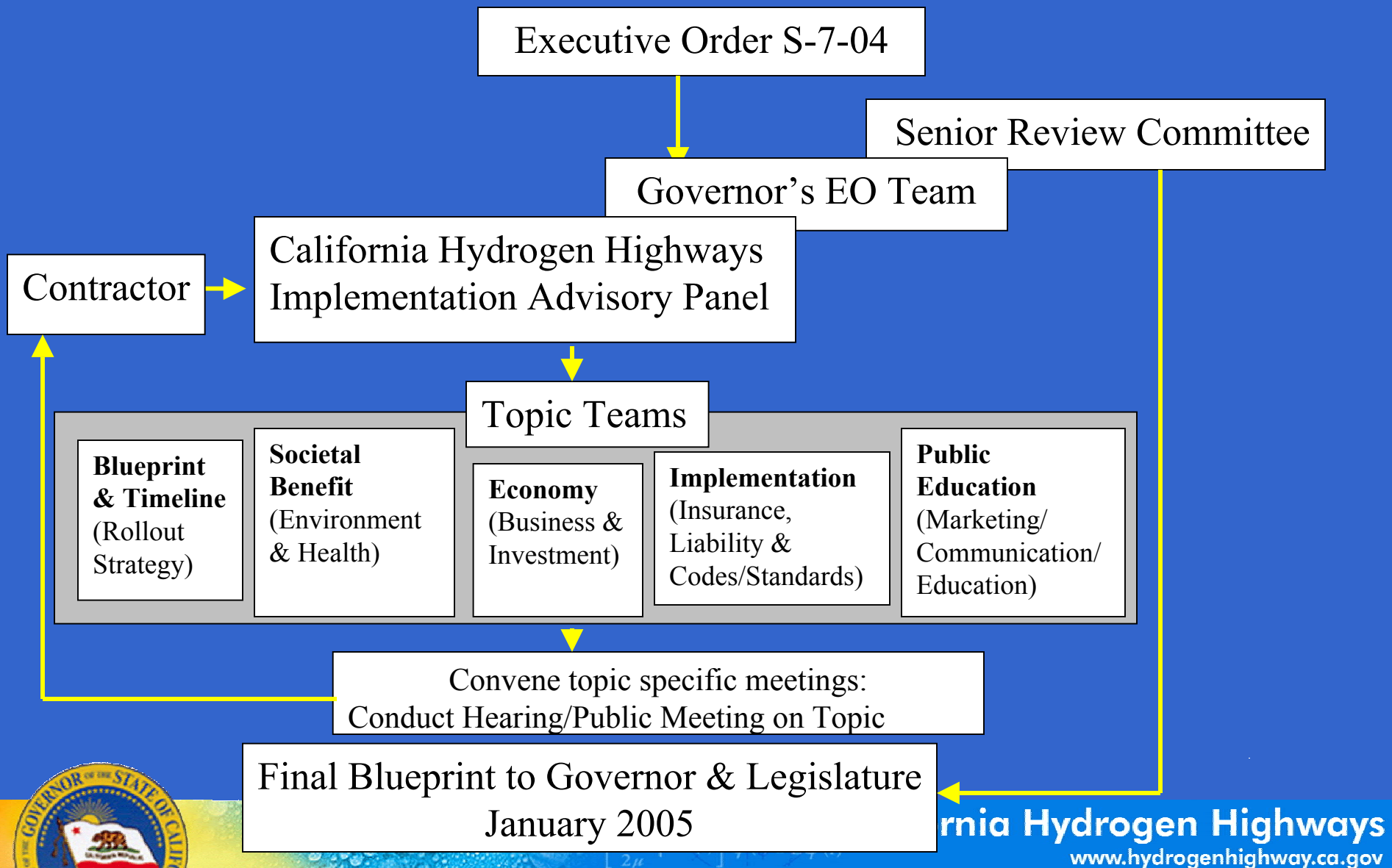
Measurements of Success

- Access to hydrogen fuel
- Significant and increasing percentage of renewable hydrogen
- Balance of commercialization pathways
- Public education program for hydrogen
- Commercially viable hydrogen vehicles & hydrogen-powered devices
- Hydrogen codes, standards, emergency response programs, training
- Ongoing research and development efforts
- New jobs and businesses

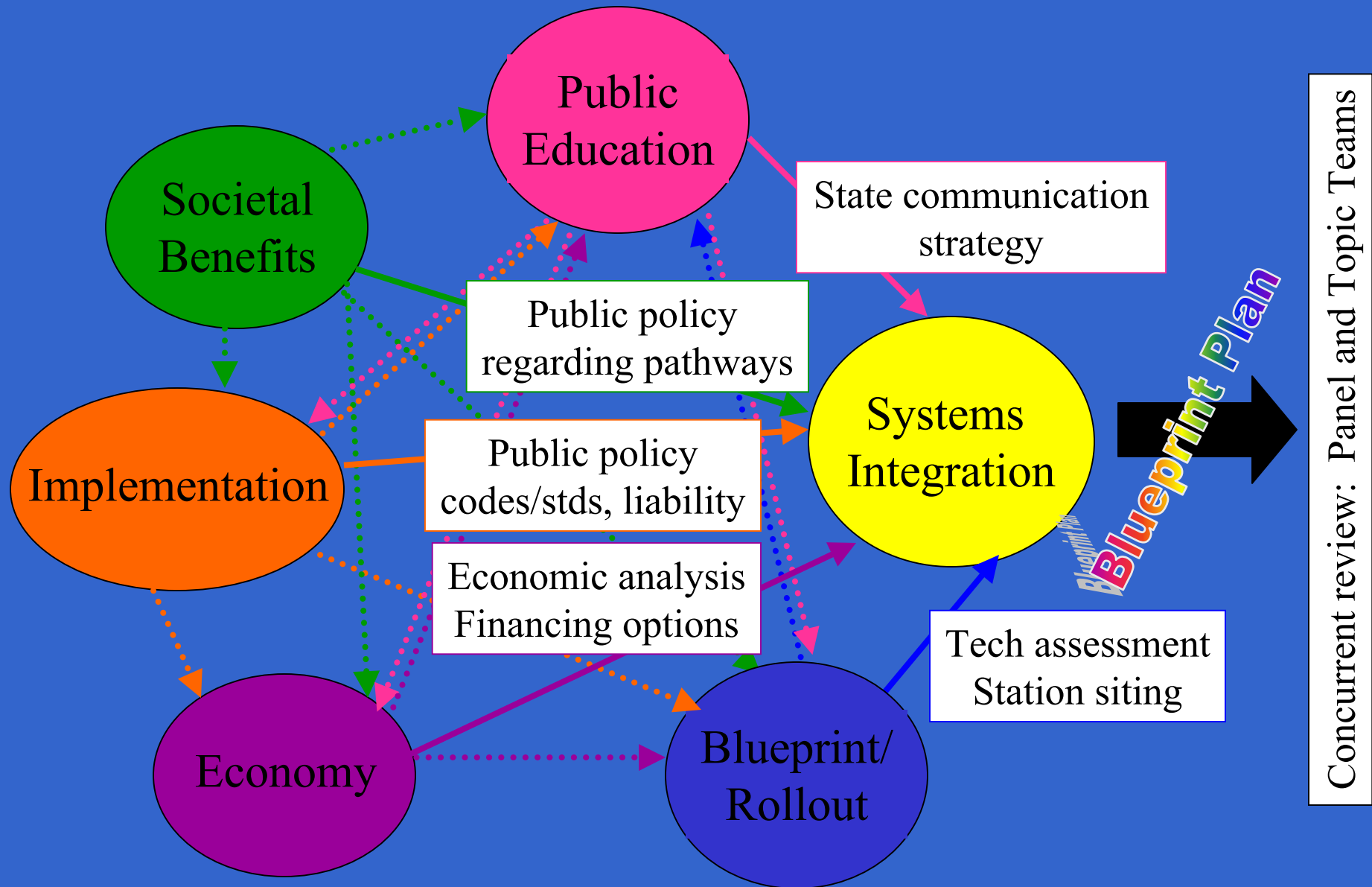


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Operational Diagram



Interactions Among Teams



Summary of Progress and Status

- The Implementation Advisory Panel has now met 6 times
- Each of the five Topic Teams has:
 - Conducted a public workshop
 - Presented detailed findings to the Panel, and sought guidance on key issues
 - Prepared a draft report
- The Topic Team reports were integrated into the draft “Blueprint Plan” report
 - Submitted to the Advisory Panel and Senior Review Committee on December 6, 2004
 - Currently undergoing revisions based on input



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Guidance from Advisory Panel has included:

- Helped develop approach for:
 - Deployment scenarios and modeling for stations, vehicles, etc.
 - Station siting
 - Station mix by type and pathway
- Assisted with establishing ranges of costs that can be expected in 2010 timeframe
- Advised on key issues, goals and objectives:
 - Relative efficiencies of various vehicle types
 - “Inclusivity” concept for CA H2 Net
 - Goals for use of renewable energy
 - Goal for reducing greenhouse gases (GHGs)

Preliminary Proposed CA H2 Net Implementation Steps

Recommended Step	Preliminary Ideas, Issues and Considerations
Step 1: Build stations based on agreements with energy suppliers	<ul style="list-style-type: none">• Determine station number and types• Consider and define roles for:<ul style="list-style-type: none">– Centralized public-private partnership– Local public-private partnerships• Maximize synergy with existing infrastructure and facilities• Coordinate closely permit officials and the State Fire Marshal
Step 2: Procure vehicles in cooperation with anchor fleets	<ul style="list-style-type: none">• Utilize State Master Agreement process where possible for government fleets
Step 3: Deploy other hydrogen-fueled devices in cooperation with stakeholders	<ul style="list-style-type: none">• Work with California Stationary Fuel Cell Collaborative on energy stations• Work with trade associations and manufacturers in other feasible applications (e.g., fork lifts)

Note: these steps are preliminary, and not necessarily meant to be implemented in this order.

Preliminary CA H2 Net Implementation Steps (continued)

Recommended Step	Preliminary Ideas, Issues and Considerations
Step 4: Identify and execute strategies to site vehicles and to ensure end use	<ul style="list-style-type: none"> • Establish agreements for fleet-based strategy <ul style="list-style-type: none"> – Government fleets (federal, state, and local) – Private fleets • Assess role and incentives for “early adopter” market • Implement policies to incentivize end uses • Work with California Stationary Fuel Cell Collaborative on energy stations • Work with trade associations and manufacturers in other feasible applications
Step 5: Formalize a centralized public-private partnership and develop organizational structure	<ul style="list-style-type: none"> • Establish a public-private partnership structure • Set up governing rules and regulations • Establish working relationships • Establish management and support staff

Note: these steps are preliminary, and not necessarily meant to be implemented in this order.

Preliminary CA H2 Net Implementation Steps (continued)

Recommended Step	Preliminary Ideas, Issues and Considerations
Step 6: Establish firm goals, objectives, schedule and milestones	<ul style="list-style-type: none"> • Establish critical path based on preliminary work in Blueprint • Ensure adherence to Societal Benefits goals • Firm up numbers and types of stations as a function of vehicle rollout, other factors • Transition to long-term plan for public education and outreach • Implement recommendations on permitting, codes and standards, insurance and liability • Determine best leveraging opportunities with federal, state and local programs
Step 7: Initiate Immediate Outreach Plan	<ul style="list-style-type: none"> • As recommended in the Public Education Team topic report • Utilize existing resources until formal effort established and funded

Note: these steps are preliminary, and not necessarily meant to be implemented in this order.

Preliminary CA H2 Net

Implementation Steps (continued)

Recommended Step	Preliminary Ideas, Issues and Considerations
Step 8: Draft and pass legislation	<ul style="list-style-type: none">• The legislature should designate hydrogen as a ‘transportation fuel’, similar to gasoline and other transportation fuels• Help station providers obtain reasonable insurance rates by creating insurance pools• Streamline the permitting process by designating the State Fire Marshal as the lead agency responsible for adopting hydrogen codes & standards, coordinating local AHJs and their permitting processes, and training emergency first responders to address hydrogen incidents• Amending the appeals process so that the decision of the State Fire Marshal on an appeal is binding and final.• Finding funding mechanisms for hydrogen technologies• Set Societal Benefits guidelines with regard to the amount of GHG emissions and renewables used to produce hydrogen

Note: these steps are preliminary, and not necessarily meant to be implemented in this order.

What Happens Next?

- The draft Blueprint Plan (including preliminary action plan) will be revised based on Advisory Panel comments and other input
- Final Blueprint will be submitted to the Governor and Legislature by Jan. 1, 2005

Public input, questions
and comments
are welcome!

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California Hydrogen Highways
www.hydrogenhighway.ca.gov